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EXAMINER

HUYNH, YENNHU B

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 10/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/924,677

Applicant(s)

KIM, BO SUNG

Examiner

Yennhu B Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 6-13 and 17-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 14-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

This Office Action is in response to the Election filed on 7/17/03.

### ***Election/Restrictions***

Applicant's election with traverse of claims 1-5 in Paper No. 6 is acknowledged. This is not found persuasive because the distinct species between the groups are as followed:

-In group I, claims 1-5 & 14-16 drawn to a fluorescent lamp including green color phosphor with  $\text{Mn}^{2+}$  as an activator.

-In group II, claims 6-13 drawn to a fluorescent lamp including green color phosphor with  $\text{Ce}^{3+} : \text{Tb}^{3+}$  as an activator.

-In group III, claims 17-23 drawn to a fluorescent lamp of LCD device and without neither  $\text{Mn}^{2+}$  nor  $\text{Ce}^{3+} : \text{Tb}^{3+}$  as an activator.

The requirement is still deemed proper and is therefore made FINAL.

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Oath/Declaration***

The Oath/Declaration filed on 08/09/01 are acceptable.

### ***Drawings***

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction

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or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,3 & 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Mori et al. U.S. 6,445,119B1).

Mori et al. at figs. 1-11 in related text col. 1-20 disclose a combined light emitting discharge lamp and luminaries using such lamp, which include:

-Re. claims 1,3 & 14: a red color phosphor having a maximum luminous wavelength within the range of about 600-670nm; a green color phosphor having a maximum luminous wavelength within the range of about 500-550nm; a blue color phosphor having a maximum luminous wavelength within the range of about 400-490nm; wherein the green color phosphor having a maximum luminous peak corresponding to the luminous wavelength within the range of about 500-550nm (col. 2,

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lines 4-11 and col.9, lines 33-43); wherein the blue color phosphor has a luminous spectral distribution of a line shape (col. 5 lines 1-9 and 16-43).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (U.S. 6,445,119B1) in view of Son et al. (KR 2000021095).

Mori et al. disclose substantially of the claimed invention including green color phosphor is bivalent manganese activated with zinc, but do not disclose wherein the green color phosphor is comprised sulfide as of  $\text{Zn}_2\text{SiO}_4:\text{Mn}^{2+}$  with  $\text{Mn}^{2+}$  as an activator.

-Re. claim 2: Son et al. disclose a process for producing zinc silicate based green fluorescent material, which include green color phosphor is comprised sulfide as of  $\text{Zn}_2\text{SiO}_4:\text{Mn}^{2+}$  with  $\text{Mn}^{2+}$  activator (Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Mori et al. invention by incorporation green color phosphor having manganese-doped sulfide as of  $\text{Zn}_2\text{SiO}_4:\text{Mn}^{2+}$  to increase the color saturation as the side peak of green color light removing.

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Claims 4,5,15 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. U.S. 6,445,119B1) in view of Soules et al. (U.S. 6,452,324B1).

Mori et al. disclose substantially of the claimed invention, but do not disclose wherein the blue color phosphor has a luminous spectral distribution of which half band width is about 40nm or narrower (cls. 4 & 15).

-Re. claims 4 & 15: Soules et al. disclose a fluorescent lamp having a second phosphor/ blue color phosphor at <495nm, which include a luminous spectral distribution of which half band value width is about 50nm (col.1, lines 48-51).

The range of a half band width dimension to obtain a sharp luminous spectrum is considered to involve routine optimization while has been held to be within the level of ordinary skill in the art, As noted In re Aller 105 USPQ233, 255 (CCPA 1955). the selection of reaction parameters such as temperature and concentration would have been obvious.

"Normally, it is to expected that a change in temperature, or in range, concentration, cycles, thickness, would be an unpatentable modification. Under some circumstance, however, changes such as these may be impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art ... such ranges are termed "critical ranges and the applicant has the burden of proving such criticality ... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller 105 USPQ233, 255 (CCPA 1955). See also In re Waite 77 USPQ 586 (CCPA 1948); In re Scherl 70 USPQ 204 (CCPA 1946); In re Irmischer 66 USPQ 314 (CCPA 1945); In re Norman 66 USPQ 308 USPQ 308 (CCPA 1945); In re Swenson 56 USPQ 372 (CPA 1942); In re Sola 25 USPQ 433 (CCPA 1935); In re Dreyfus 24 USPQ 52 (CCPA 1934).

→ 103 = Mori'etat - Soules - Son

Mori et al. also do not disclose wherein the blue color phosphor is comprised of any one selected from the group consisting of  $\text{Sr}_{10}(\text{PO}_4)_6\text{Cl}_2:\text{Eu}^{2+}$ ,  $(\text{Sr,Ca})_{10}(\text{PO}_4)_6\text{Cl}_2:\text{Eu}^{3+}$  and  $(\text{Sr,Ca})_{10}(\text{PO}_4)_6\text{nB}_2\text{O}_3:\text{Eu}^{2+}$  (cls. 5 & 16).

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-Re. claims 5 & 16: Soules et al. also disclose wherein the blue color phosphor /second phosphor comprises  $\text{Eu}^{2+}$  as an activator and selected from Sr,  $(\text{PO}_4)_6$ , Cl, Ca, Ba, B or  $\text{O}_3$  as of  $(\text{Sr}, \text{Mg}, \text{Ca})(\text{PO}_4)_6\text{Cl}_2:\text{Eu}^{2+}$  or  $(\text{Ba}, \text{Ca})_5(\text{PO}_4)_6\text{Cl}_2:\text{Eu}^{3+}$  wherein the one part of Sr replaced by Ca or Ba (col.2, lines 53-57 and col. 5, lines 5-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine <sup>also</sup> Soules et al. invention by incorporation phosphor of Sr,  $(\text{PO}_4)_6$ , Cl, Ca, Ba, B or  $\text{O}_3$  to control the maximum luminous wavelength or intensity increasing by replacing one part of Sr with Ca or Ba or others among of these materials.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yennhu B Huynh whose telephone number is 703-308-6110. The examiner can normally be reached on 8.30AM-7.00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached on 703-308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-7724.

Yennhu Huynh,  
Examiner  
10/6/03

